



The Netherlands  
Ministry of Housing, Spatial Planning  
and the Environment



Exploring New Approaches in Regulating Industrial Installations

## Workshop on Emissions Trading in NEC Substances (in particular NO<sub>x</sub> and SO<sub>x</sub>)

21 and 22 November 2002  
Kurhaus, The Hague/Scheveningen, The Netherlands



Informationcentre for Environmental Licensing and Enforcement

## Workshop Report

Prepared by:



Foundation for International  
Environmental  
Law and Development (FIELD)



**ENAP Workshop on Emissions Trading in NEC Substances  
(in particular NOx and SOx)**

**Workshop Report**

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# 1. Introduction

This report covers the first ENAP workshop on 'Emissions trading in NEC substances, in particular NO<sub>x</sub> and SO<sub>x</sub>, held on 21 and 22 November 2002 in the Kurhaus in The Hague/Scheveningen, the Netherlands. The report consists of this introduction and four sections. Section 2 provides a brief background to the ENAP project. Section 3 gives an introduction to the first workshop and its objectives. Section 4, by far the longest, provides a brief summary of the various presentations and discussions held during the 2-day workshop. The final section, section 5, summarises the discussions of the workshop in the form of workshop conclusions. The different opinions of the participants to the workshop, described in this report, do not necessarily reflect the official views of the administrations or organizations they represent.

Participants ENAP workshop Emissions Trading 21 and 22 November 2002



*Photographer: Rinie Bleeker*

## 2. Background to ENAP

The project ‘Exploring New Approaches in regulating industrial installations’ (ENAP) is a two-year project, initiated by the Netherlands. The project’s objective is to provide a platform for a European dialogue on a number of promising alternative regulatory approaches that can be used to achieve a better and more cost-effective environmental performance of industrial installations.

ENAP’s European dialogue provides a unique opportunity to promote the objectives of the European Community’s Sixth Community Environment Action Programme, recently adopted by the European Parliament and the Council of Ministers<sup>1</sup>. It is also in line with the discussion document “Rightly Responsible, Environmental responsibility and the law!”, published by the Dutch government in March 2001, which discusses the requirements for future environmental legislation based on sustainable development in a responsible society. The discussion document “Rightly responsible” stresses the importance of a European dialogue on the modernisation of environmental instruments.

As part of ENAP’s European dialogue, three interactive international workshops will be organised, with the November 2002 workshop on emissions trading on NEC substances (particularly SO<sub>2</sub> and NO<sub>x</sub>) complemented by two others - in May and October 2003. These workshops will focus on the following issues:

1. Using national or regional systems of emissions trading for substances covered under the national emissions ceilings (NEC) Directive<sup>2</sup> - the first workshop and object of these proceedings;
2. Connecting elements of company environmental management systems with permitting and enforcement – scheduled for May 2003;
3. Issuing permits to groups of installations located at the same industrial site or to groups of installations on different sites that belong to the same company – scheduled for October 2003;

The three workshops are designed to allow and encourage active participation by policy makers, experts, practitioners and representatives of industry and environmental NGO’s from the EU Member States, the Candidate Member States and the European Commission. Members of the IPPC Expert Group and experts on the NEC and LCP Directives and on the EMAS regulation are invited to take part in the discussions in the workshops. The project also seeks involvement of the IMPEL network through participation of its members in the workshops and periodic reporting of the project’s progress to the IMPEL plenary. Furthermore representatives of industry and NGOs are invited to participate in the workshops. In preparing and executing the project the ENAP Project Team of the Netherlands is supported by a preparatory group (PREP Group) consisting of experts from the European Commission services and from several Member States and Candidate Member States.

The result of ENAP is to be a comprehensive report, the aim of which is to analyse and, where appropriate, give an impetus to the introduction of novel regulatory approaches in

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<sup>1</sup> Decision 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme.

<sup>2</sup> Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants.

Europe (at Community, national and regional level). The report will include conclusions and recommendations on different new approaches and instruments, an analysis and outline of a coherent framework in which future regulatory innovations can be developed and suggest an agenda for further work.

### **3. The first workshop and its objectives**

The objective of this first workshop was to allow an in-depth exchange of experiences with and views on the use of emissions trading to tackle in particular NO<sub>x</sub> and SO<sub>2</sub> emissions from industrial installations, as well as to discuss the role that this instrument could play within individual EU Member States. The workshop also aimed to discuss different elements in the design of emissions trading regimes and any necessary changes in the EU legislative framework to allow interested Member States to go ahead with the implementation of domestic trading regimes.

The workshop in particular sought to address:

- Experiences with emissions trading regimes both within and outside the EU
- Different views on the use of emissions trading and other economic instruments, also compared to other regulatory approaches
- The role for emissions trading at a domestic and regional level within the framework of EU environmental legislation
- The effective, efficient and fair allocation of emission allowances
- Monitoring, compliance and enforcement aspects of emissions trading.

To allow a discussion of each of these issues, the workshop was divided in four sessions, including a number of parallel working group discussions, reporting back to plenary.

### **4. Summary of the workshop**

After a number of opening presentations, setting the stage for the two days to follow, the workshop's first session started with an overview of various national experiences with the design and use of NO<sub>x</sub> and SO<sub>2</sub> emissions trading regimes, as well as a series of presentations setting out a range of views on the usefulness of emissions trading, in particular in comparison to other instruments. Session 2 during the afternoon of the first day allowed the participants to discuss the potential role and merits of emissions trading in three parallel working groups, with a report back to and general discussion in plenary. Day 2 opened with a third session containing four presentations on various aspects and issues related to emissions trading. Session 4 in the afternoon of the second day consisted of three parallel working group discussions, focussing on the role of emissions trading within the EU legislative policy framework, allocation aspects of emissions trading and monitoring, compliance and enforcement of emissions trading. The results of the parallel working groups were reported back to plenary, after which a general discussion was held.

This part of the report contains a short summary of the presentations and discussions under each of the workshop sessions. The slides of the presentations held during the workshop can be found on the internet at: <http://sharepoint.infomil.nl/enap/workshop1>.

## Day 1

### Opening Session

After a brief ‘Welcome’ by the chairman of the workshop, **Hugo von Meijenfeldt**, Director, Soil, Water and Rural Environment Directorate, VROM ‘Opening Address’ was given by **Mrs Tilly Zwartepoorte** (Director, Climate Change and Industry Directorate, VROM) on behalf of the State Secretary for Housing, Spatial Planning and the Environment, Mr. Pieter van Geel. Mrs. Zwartepoorte explained the need felt by the Netherlands to explore new instruments to complement or substitute the current regulatory framework to allow a further improvement of industry’s environmental performance and to achieve the ambitious environmental goals of the coming years. She underlined the importance of the workshop in exploring the advantages and disadvantages of promising new instruments, the conditions under which they could be worked out and the changes in the EU legislative framework that the development of these instruments would require. She furthermore stressed that EU legislation should leave sufficient flexibility for Member States to choose the instruments that in their countries work most effectively and efficiently. She also explained the Dutch wish that the findings of the ENAP project should at some point be on the political agenda and that the Netherlands certainly intended to give it its full attention during the Dutch presidency in the second half of 2004.

**Jan Teekens** (NL, VROM/ENAP Project team) continued the opening session with an ‘Introduction to ENAP’. He stressed the importance of ENAP in exploring the role of new regulatory instruments, including approaches that appeal to industry’s own responsibility, are linked to economic or geographical entities rather than the installation and activity-specific approach that is central in the EU legislation and approaches that are market-based. He also outlined the various issues for discussion at the 2<sup>nd</sup> and 3<sup>rd</sup> workshop, including the exploration of new roles for industry and regulator, simpler permit procedures, new styles of permitting, a shift of control mechanisms to self-monitoring and external auditing and regulating larger entities than installations or sites. After outlining the organisational aspects of ENAP he explained the importance of the workshop in contributing to a better understanding of promising new approaches and instruments and how those instruments can be further developed. He also stressed the need for a vision on future regulatory innovations and an agenda for further debate.

**Patrick ten Brink** (IEEP) closed the opening session with a ‘Summary of the Results of the ENAP Member and Accession State Survey’. The ENAP Project Team had launched a survey to identify environmental policy instrument questions that Member States and Candidate Countries wished to explore in more detail, noting questions, concerns and links to existing practice in the EU and in third countries. This explored in particular the range of national experiences, concerns and interests for the three workshop themes of ET and NEC substances, the link of environmental management systems and permitting (notably what benefits there are from an accredited EMS), and multi-installation permitting (notably whether there is scope for developing multi-installation and multi-site permitting). It also highlighted other areas of activity and interest, such as the use of voluntary agreements (VAs). A summary of the main points are presented in Annex III, as are the detailed tables of results.

The seminar responses are valuable for the design of each of the workshops and will help ensure that balance of emphasis of the topics discussed allows greatest progress with

exploring the three principle themes. Additional inputs to the workshops will be sought through the PREP group meetings preceding each workshop.

## **Session 1: Review of emissions trading in the US, the Netherlands and the UK, and various views on emissions trading and the use of economic instruments**

**Joe Kruger** (US, EPA Washington) opened the first workshop session with a presentation on '*Emissions Trading in the US: Case Study of SO<sub>2</sub> and North-eastern NO<sub>x</sub> Cap and Trade*'. He started with an overview of various aspects of the US Acid Rain Program, which has helped achieve significant reductions in SO<sub>2</sub> emissions from over 2000 electric power sources across US at costs that were much lower than expected. He explained that the greatest reductions have taken place in states with highest emissions and that the system has not created hot spots, partially due to local air quality provisions remaining in force. He also explained the Ozone Transport Commission NO<sub>x</sub> trading programme, which is designed to reduce ozone levels (smog) in the Northeastern United States. He pointed out the interesting federal/state level interaction, whereby States could use model rules developed in conjunction with EPA, to develop their trading regimes. Certain design elements were specified in these model rules, such as the sectors that would participate in the program and emissions monitoring requirements. However, states were given the discretion to choose other design elements (e.g., allocation schemes). EPA was given the responsibility for running the allowance and emissions data systems and for conducting the annual reconciliation of emissions and allowances. He stressed the benefits of a Cap and Trade regime in providing relative certainty of its environmental outcome, limiting the impact on economic growth through increased compliance flexibility and lower transaction costs and lower costs of administering the regime.

A **question** from the European Commission asked the speaker to explain the relationship between the Federal and State level in the setting of each State's emissions budget. Joe Kruger pointed out that the OTC trading program was designed to help meet Federal air quality standards. States signed a Memorandum of Understanding (MOU) setting the responsibilities of each State. The OTC program was designed to address regional transport of emissions. It is, however, only one component of State air quality programs, which also include local emissions controls. An industry representative asked how the overall goal of the trading regime was determined, to which the speaker responded that it required a combined assessment of what is economically and politically achievable and environmentally necessary. Another industry participant also questioned the fact that no allowances were set aside for newcomers. Joe Kruger answered that not many new coal-fired sources were expected to enter the regime and those that would, could buy allowances from existing sources. He also noted that auction and direct sale provisions provided assurance that new sources would have access to purchased allowances. In practice, the allowance market has been liquid and new sources have not had any problems obtaining allowances.

**Jack P. Broadbent** (US, EPA California) continued the overview of experiences in the US with a presentation on '*The RECLAIM Programme in Southern California*'. The Regional Clean Air Incentives Market (RECLAIM) was adopted in 1993 to address air quality problems in the Pacific Southwest, especially particulate matter (PM<sub>10</sub>) and Ozone. Jack Broadbent explained the scale of the environmental problem and that one of the key reasons for introducing the trading regime for NO<sub>x</sub> and SO<sub>2</sub> was that few cost-effective reduction

options remained. He set out the system's ambitious targets, requiring an emission reduction of around 8% per year, but noted the impact of the recent economic downturn and the energy crisis on the operation of the programme and its resulting recent adjustments. In his overview of the lessons learned from RECLAIM he stressed that market-base programmes require significant planning, preparation and management during development and throughout the lifetime of the programme. He also underlined the need for a continuous review, the need for regulators to create confidence and trust in the market and the fact that administrative costs could be higher than the command and control structure replaced by it.

A **question** from the industry asked for the reason for excluding VOCs from RECLAIM. Jack Broadbent answered that the additional monitoring and reporting needed to have a credible programme required a too high and too sophisticated level of monitoring to be practically feasible and that other instruments were found to be better suited. An environmental NGO enquired into the technological advances that resulted from RECLAIM. The answer was that the programme overall did provide incentives, but that these were hard to reproduce elsewhere because of their very installation specific nature.

**Chris Dekkers** (NL, VROM/ENAP Project team) provided a presentation on '*NO<sub>x</sub> Emissions Trading in the Netherlands*'. He outlined the difficulties with using installation-specific emissions limit values (ELVs) to achieve the Dutch NO<sub>x</sub> target for industry for 2010, derived from the obligations under the NEC directive. The difficulties in negotiating ELVs, the slower than expected innovations in and replacement of installations and the greatly differing possibilities of emission reductions between installations resulted in the Netherlands only being halfway its target in 2000. He outlined the advantages of emissions trading for industrial emission sources, allowing the regime to reach targets that cannot be reached through traditional regulatory mechanisms. Chris Dekkers described the design principles of the planned Dutch trading regime. It uses a dynamic cap (performance standard rate, PSR), which fits better into the current environmental policies and legislation and is supported by industry. The regime sets a 55 ktonnes target for 2010 and uses a decreasing PSR up to 2010 (65 grammes per GJ in 2004 to 50 grams per GJ in 2010), with an evaluation and possible adjustment in 2005. He pointed out the limits imposed on the Dutch regime under EU legislation, which require the regime to be implemented parallel to existing EU legislation, but stressed the intention to seek an amendment of EU legislation to increase the scope for trading in the longer term.

A **question** from a representative of industry asked how the Dutch regime will address non-compliance. Chris Dekkers answered that a facility's emission deficit would be moved forward to its next year's budget, with a 30 to 40% penalty addition. In case of a repeated non-compliance with monitoring requirements a penalty would be imposed.

**Neil Davies** (UK EA) addressed '*Proposals for a Trading Scheme to Reduce Emissions of Sulphur Dioxide and Nitrogen Oxides from Point Source Combustion Processes in the UK*'. He underlined that these are proposals in the UK for a trading scheme and there is still significant discussion in the UK regarding how ET could address the environmental challenges of reducing SO<sub>2</sub> and NO<sub>x</sub>. Such a scheme could focus on emissions from installations, but would not cover road transport which contributes 50% of UK NO<sub>x</sub> emissions. The existence of a carbon trading scheme for many of the same installations will offer valuable synergies. Currently the strategy for controlling SO<sub>2</sub> and NO<sub>x</sub> from coal and

oil fired power stations uses the IPC (Integrated Pollution Control) approach<sup>3</sup>. Site specific mass limits (known as A limits are set up), taking into account local concerns and capacities. In addition, each generator has a bubble mass limit across their stations (B limits). B limits are gradually reduced to 2005 encouraging more allocation/burden sharing, but without formal trading. Importantly the B limit is less than the sum of A limits. This system was set up when there were 2 electricity companies and now there are 8 or 9 companies, so the system is becoming less transparent and a new move forward is needed.

It is still being debated whether a focus on technology standards approach or ET will be chosen in the UK. If an ET scheme, then it will build on the current A and B limits, with trading allowed with regard to the B cap, and no trading on A limits allowed. In other words, industry will be able to choose which technologies/techniques are needed and where, to meet the Cap, and this “choice” would be delivered through IPPC permits. The IPPC permits would note the site specific techniques/technologies as well as note the ET context and conditions. The scheme would apply to large combustion plants, while the key feature is a sector based approach (look at performance currently, costs and then arrive at reduction strategy from that), supplemented by site specific requirements.

**Matti Vainio** (European Commission, DG Environment, Air Quality and Noise Unit) provided a presentation on ‘*The Role for Allowance Trading in EU Environmental Policy*’. He started by presenting a history of regulatory control of NO<sub>x</sub> and SO<sub>2</sub>, noting that industrial plants have faced, inter alia, the LCPD in 1990, IPPC in 1999, and 2001 limit values for ambient air, the NEC Directive in 2002, the LCPD update in 2002 and proposal for greenhouse gas emissions trading expected to come into effect in 2005. Furthermore in the 6th Environmental Action Programme we can see some interesting developments – the Commission’s proposal of May 2001, promoted the PPP (polluter pays principle), including through the use of ET. The final text (September 2002), noted that policy makers should analyse ET as a generic instrument, *promoting the use of ET where feasible*. This underlines a growing interest in and pro-active attitude towards this innovative instrument.

Regarding past experience, he underlined that ET in the greenhouse gas field has been estimated to bring cost savings of 25% to 30%. He also noted that discussions of ET, sometimes face the “false yardstick syndrome”, as ET is compared with something that is ideal, such as perfect regulation. He then went on to explore 4 other common fallacies about ET<sup>4</sup>, and then key questions policy makers need to address when considering ET. These included: how can trading be framed to ensure that it does not lead to local pollution problems; would NO<sub>x</sub> and SO<sub>2</sub> trading only take place within countries or could cross-border trading be envisaged; and should caps or standards be fixed through a top-down approach (eg based on NEC) or a bottom-up approach (based on BAT) or both; and of course, would emissions trading (compared to other instruments) increase or decrease incentives to invest in new plants using state of the art environmental technology?

**Tomas Chmelik** (Czech Republic, Department of Environmental Economy, Unit of Economic Instruments, Ministry of Environment) presented the ‘*Czech Republic Perspective on Emissions Trading*’. Tomas noted that in the CR there is a relatively extensive system of

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<sup>3</sup> The IPC approach was launched in the UK prior to the IPPC Directive and indeed influenced the uptake and design of the IPPC Directive. The philosophy and practice are broadly the same between IPC and IPPC.

<sup>4</sup> The other four fallacies noted are: Ideological belief or disbelief in markets; relative targets (hence Caps) are better than absolute ones; fixation on trading volumes (small volume trade might show good initial allocation), only sellers gain (buyers gain too).

economic instruments in place, with charges on air, water, waste, and mining, which together with VAT and excise duties provide a lot of revenue to the environmental fund. ET has been theoretically considered, but not introduced so far. Studies on trading (eg SO<sub>2</sub> trading in Sokolov) and the developments of the EU GHG ET may help break the obstacles to ET in the Czech Republic. The early view was that ET was too new and risky for CR. This perception, while now less strong, still holds and the Czech approach is to wait that others show that it will work, while at the same time investigating the option further domestically, through, inter alia, the creation of emissions trading groups.

**Håkan Bengtsson** (Sweden, Environmental Protection Agency) gave a presentation on ‘*The Swedish charge on nitrogen oxides – cost-effective emission reductions*’. Sweden adopted a NO<sub>x</sub> act in 1990, which entered into force in 1992, that introduced a charge to be paid for NO<sub>x</sub> emissions from combustion plants for energy production (heat/electricity). The charge is calculated for each production unit (boiler, gas turbine, combustion engine), and is levied at 4.5 Euros per Kg of NO<sub>x</sub> emissions on units with a useful energy production exceeding 25GWh/year. The charge funds not used for administration are returned to the sources in proportion to the final production of useful energy, redistributing those funds from units with high emissions per output of useful energy to those with low emissions per output. Taken as a whole, the combined heat and power sector is the largest receiver and the pulp and paper sector the largest payer to the system. However, there are winners and losers in all industrial sectors. Håkan Bengtsson stressed the low administrative costs of the regime (0.7 per cent of the charge amount in 2001) and its effectiveness in reducing emissions per unit of output. He also pointed out some of the negative aspects of the regime, including relatively expensive monitoring and the risk for unwanted side-emissions.

**Siegfried Waskow** (Germany, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) in a presentation on the ‘*Effectiveness and limitations of instruments for implementing national emission ceilings under the NEC Directive*’ discussed the position of his Ministry on the instruments needed in environmental policy in general, for implementing the NEC Directive and for further reduction of pollutants, in particular the role of BAT and emissions trading. He stressed the general need for environmental policy of using not a single instrument but the right mix of instruments to address environmental challenges. In the area of industrial installations the conventional instruments, especially regulatory instruments allow Germany to achieve its NEC objectives. For further reduction of pollutants he stressed that precautionary action according to BAT on one hand guarantees a nation-wide high level of environmental protection, also with regard to existing installations under the concept of “general binding rules” according to Article 9 para. 8 of IPPC-Directive, on the other it hand raises the question of proportionality of costs and benefits; therefore it could be theoretically conceivable to introduce in future emissions trading in addition to the BAT approach of the IPPC-Directive. He furthermore took the position that amending the IPPC Directive to allow Member States to introduce a domestic trading regime would only be acceptable if those regimes would be at least functionally equivalent and would not undermine the precautionary approach chosen by the Directive, and stressed that due to current lack of experience with implementing IPPC a discussion on a European trading regime is currently premature.

## Session 2: Working Group Discussions

Three parallel working groups were held to allow workshop participants to explore various aspects of emissions trading in a more informal setting. The three chairmen of the working groups were given a list of suggested issues for discussion to use as guidance in the discussions in their group (box 1 below). The rapporteur of each working group reported the results of the discussions in that working group back to the plenary meeting.

### Box 1: Parallel Working Groups, suggested issues for discussion

- What are the advantages/disadvantages of emissions trading vs other instruments?
  - Costs/benefits vs other instruments
  - Competitiveness impacts vs other instruments
  - Impact on development of technology
- How is emissions trading related to other existing and new instruments of environmental regulation? Other instruments include:
  - IPPC Directive and Emission Limit Value/Best Available Techniques requirements therein;
  - Environmental taxes and charges;
  - Voluntary agreements;
  - Other instruments.
- Can emissions trading contribute to an integrated assessment/regulation of environmental pressures of an installation?
- (How) can emissions trading ensure the protection of the local environment, prevent pollution ‘hot-spots’?
- The importance and implementation of transparency and public participation in (designing and) implementing an emissions trading regime. In particular the importance of transparency in the setting of caps/targets, allocation and trades.
- Should emissions trading in NEC substances be implemented by/within Member States, among several Member States or EU-wide?
- What is the role of emissions trading in EU enlargement, diversification of regulatory instruments, use of framework legislation?
- How is the overall target/cap of an emissions trading regime to be set:
  - Bottom-up (using BAT as the basis)
  - Top-down (using NEC as the basis)
- Advantages/disadvantages of performance standard (Relative targets) vs trading regimes with a cap (Absolute targets).
- How to allocate allowances within a trading regime?
  - Role of Performance Standard Rates
  - Auctioning vs free of charge
  - (how to) recognise early action
- Institutional consequences of emissions trading:
  - Authorities
  - Non-governmental (verifiers)
  - Legal framework
- Availability of data, monitoring and verification techniques sufficient to establish a trading regime for NEC substances?

The **Rapporteur of Working Group 1** reported to the plenary that the group found that emissions trading can give a stronger incentive for technological advances than other regulatory instruments. Emissions trading can also generate additional information on costs and advantages of emission reduction measures and help to meet targets in most cost-effective way. The group also considered the difference between taxes and charges on the one hand and emissions trading on the other. It found that the application of taxes and charges can in practice be similar to trading with auctioning and that taxes and charges may be simpler and less (administratively) costly to implement, but do not guarantee the environmental outcome.

The group also noted that industry often mistrusts promises made by government that revenues from taxes and charges will be recycled, and therefore feels more in control with emissions trading. The group also felt that there was a public perception problem with emissions trading.

The group also compared emissions trading with traditional command and control techniques, including those used by the IPPC Directive. It felt that the use of corporate bubbles and sectoral voluntary agreements is not precluded by trading, a mix of instruments could combine top-down and bottom-up environmental quality approaches. The group also concluded that trading can co-exist with IPPC, but that its scope depends on the application of the concept of Best Available Technique(s) (BAT). The group furthermore found that BAT can also be useful for determining allocation in a trading regime.

The group also remarked that the environmental impacts of NEC substance emissions vary according to location and that NEC substance trading is therefore geographically limited by the local impacts. In order to address those local problems a command and control approach is still needed. Moreover, emissions trading should not undermine the IPPC's integrated approach.

The group furthermore concluded that the possibility for NEC substance trading beyond national borders is currently limited by the NEC Directive and the Gothenburg Protocol, but that this could be changed in the future, and that the EU could also set ground-rules for the development of national trading regimes.

The **Rapporteur of Working Group 2** told the plenary that the group discussed the merits of the traditional command and control approach - as favoured by the German presentation - to emission trading, and concluded that such approach did not impose an extra burden on sources, but precluded more flexibility in achieving targets. The group also discussed whether emissions trading can ensure that the requirements of the NEC Directive are met. It concluded that emissions trading can be a good instrument to further improve environmental quality. The group also discussed the costs of administering an emissions trading regime compared to a charging scheme, but found that it was hard to assess which one was more cost-effective. The group similarly discussed the difference in the costs of monitoring emissions in a trading regime compared to the costs of monitoring emissions under other regulatory approaches but concluded that there was unlikely to be a large difference. The group furthermore felt that emissions trading should only be used if it lowers overall implementation and compliance costs compared to other regimes, with one group participant stressing that this needed more research. It was also felt that emissions trading should not undermine the IPPC's integrated approach. Several group participants raised specific issues. The UK for instance stated in the group's discussions that its public is generally sceptic towards emissions trading, but that in Wales, due to the impact of recent natural disasters, people increasingly realise that more action needs to be undertaken, and that more transparency is needed in the way that such action is undertaken. France on the other hand mentioned that it is currently implementing negotiated agreements, but that it has no information on how emissions trading is perceived by the public. Austria reported that emissions trading is increasingly accepted by industry, but that acceptance is more driven by the requirements of EU legislation.

The group also discussed the advantages and disadvantages of emissions trading. It found that these advantages were dependent on the design of the regime and the characteristics of the sector and country in which it is implemented, but could include increased transparency, a

certainty of environmental outcome, reduced cost of compliance compared to other policies, incentives for innovation, a reduced risk of regulatory capture given lesser information asymmetries, and the advantage that it can be used in combination with other instruments. The disadvantages of emissions trading were thought to include possible high transaction costs, the need to have strong monitoring and verification to avoid system leaks and ‘paper’ allowances as well as the fact that costs could be too transparent for industry’s liking. It was noted though, that due to strong monitoring and verification our knowledge gaps on environmental issues are reduced. The group found it was important to get the design of an emissions trading scheme right, and estimate the risks and rewards of such a regime.

The **Rapporteur of Working Group 3** summarised the group’s discussions on a range of issues. The group first addressed whether there is enough information available on emissions trading. It found that there still is a lack of practical experience, which is mostly limited to the US, but that ‘the perfect should not become the enemy of the good’. The group therefore suggested an alternative approach that would allow the ‘leaders to lead’, inform those countries who wish to await the results and that would accept the need for alternative approaches in other countries. Such approach was felt to allow progress and would bring new experience to facilitate the further development of new regulatory instruments.

The group also discussed the advantages and disadvantages of emissions trading. It found that these advantages were dependent on the design of the regime and the characteristics of the sector and country in which it is implemented, but could include increased transparency, a certainty of (emissions) outcome, reduced cost of compliance potential, incentives for innovation, a reduced risk of regulatory capture given lesser information asymmetries, and the advantage that it can be used in conjunction with other instruments. The disadvantages of emissions trading were thought to include possible high transaction costs, the need to have strong verification and monitoring to avoid system leaks and ‘paper’ allowances as well as the fact that costs could be too transparent for industry’s liking. The group found it was important to get the design right, and estimate the risks and rewards of a new regime.

The group did not have a specific position in favour or against emissions trading, but felt that it is a tool that can be used where circumstances are appropriate – clarity was needed on when to use it and why. The group also discussed the methods for target setting under emissions trading and concluded that it should be based on the capacity of the eco-system to absorb the emissions and was dependent on what the regulator wishes to achieve. The group also discussed the merits of relative or absolute trading and concluded that either regime is technically feasible, but that they should operate within an overall absolute target. It was noted that a trading regime operating under relative caps might entail higher transaction costs than a system based on absolute caps. The group did conclude that an absolute trading regime gives greater certainty of the environmental outcome than relative trading, the outcome of which can be influenced by a range of variables.

The rapporteur finally presented the group’s conclusions on methods for allocation. The group felt that allocation was probably the most controversial issue in the design of a trading regime. While auctioning may be fairest and most transparent method to allocate, industry groups were not keen on it given its financial burden. There was broad support for the conclusion that a hybrid system might work and that the role of auctioning could be increased as the system matured, but this conclusion did not find support from industry representatives.

During the ensuing **Plenary Discussion** a representative of the European Commission remarked that the level of knowledge on emissions trading seemed still quite elementary in the Member States and asked whether there is a way of stimulating a learning process. A Member State representative remarked that the Netherlands is currently going through a learning process, but that it feels restricted in the implementation of its system because of the limited room under EU legislation. Another European Commission representative remarked that the experiment within the EU has in fact already started and that when solving an environmental problem we have to look at all the instruments that are available. At the moment two greenhouse gas trading regimes were already operational (Denmark and the UK) and an EU regime is in an advanced stage of development.

## **Chairman's summary of the day 1 discussions**

The **Workshop Chair, Hugo von Meijenfeldt**, closed the first day of the workshop with '*A Summary of the Day's Discussions*'. He noted that although many participants had mentioned the lack of experience with emissions trading in the EU, nobody fully opposed the instrument, but the workshop participants were generally in favour of more experiments with emissions trading and the exchange of information on the results. He also concluded that emissions trading, like all regulatory instruments, has its advantages and disadvantages, but that it can be a very useful tool to achieve environmental quality objectives. Rather than discussing the arguments pro and contra emissions trading, the discussion should focus on the circumstances and methodologies for using this tool.

He noted that emissions trading can be a cost-effective instrument that can give more clarity about the outcome, and have a positive contribution to the development of new technology, but that questions remained on the degree of monitoring required and the actual transaction and organisational costs of the implementation of trading regime.

On the relationship between emissions trading and other instruments the chair concluded that it could easily be used in combination with other instruments, and that such combination could even be preferable, but that differences of views remained among the workshop participants on whether it replaces existing command and control instruments or is only an additional, supplementary instrument. On the relationship with the IPPC directive and the BAT concept, the chair concluded that there are possibilities to operate a trading regime alongside this instrument, but that there is a tension. In comparison with taxes and charges the chair found that the costs of administering different regimes may vary, but that the regimes could work in a similar manner, although the environmental outcome of taxes and charges is less certain. The workshop chair also emphasised the concerns that were raised about the need to maintain an integrated approach to pollution control and the need to protect the local environmental quality, which if in a particular situation required could be achieved through using command and control approaches in conjunction with emission trading.

The chair repeated the concern raised by a number of workshop participants that there is still a public mistrust of emissions trading and that work on increasing its acceptability remains to be done. On the possibility of establishing cross-boundary trading regimes on NO<sub>x</sub> and SO<sub>2</sub> the chair stressed that the NEC Directive and the Gothenburg Protocol currently pose barriers to such trading. He also addressed the difference between trading regimes with relative and absolute targets and noted that the workshop participants found that regimes with absolute targets have a greater certainty of the environmental outcome. On the issue of allocation the chair concluded that auctioning may be the fairest and most effective approach, but that it was

opposed by industry because of the additional financial burden it would place on the participants to the trading regime (unless the revenue was recycled).

In the brief **Plenary Discussion** that followed a representative of the European Commission stressed that emissions trading is a good instrument that helps achieve a specific target at less cost, or that gives a better environmental benefit for a given amount of money. Another representative of the Commission noted that key questions are how much we are willing to spend to achieve a certain objective. On allocation he noted that the perception of fairness is the key to the controversy among industry groups. While auctioning is certainly the fairest system, the costs of that system were a real issue, together with industry's mistrust that the income of the auction would be reallocated fairly.

## **Day 2**

### **Welcome and summary of the discussions of day 1**

Workshop Chair **Hugo von Meijenfeldt** welcomed the participants to the second day of discussions and summarised his conclusions of day 1. He invited the participants to help define in the day's discussions the concrete scope and conditions for domestic emissions trading initiatives within EU Context. Moreover, he invited all participants to think through what needs to be done to allow those who wish to further develop emissions trading within their domestic legal and policy frameworks to do so, and others to learn from these experiences.

### **Session 3: Various aspects and issues related to emissions trading**

Session 3 was opened with a presentation by **David Harrison** (USA, NERA) on '*Initial Allocations in Various Systems of Emissions Trading*'. David Harrison noted that in the US EPA there was a great hope that ET could be win-win, but in the 1980s it turned out that there was little activity. This was because there was a lot of administrative work to avoid paper credits.

Experience underlined that terminology can be a big problem – eg relative targets, performance standards and averaging are terms which can confuse. Furthermore there are different trading types to choose from – *reduction credits* (for below baseline emission rate), *averaging* (credits for reducing beyond average rates) and *cap and trade* (buy and sell allowances). Importantly, the initial allocation is a crucial element in all emissions trading programmes with allocations approaches including auctioning, grandfathering (use of historical information), updating (use of future or ongoing information), or indeed hybrids.

Regarding experience, the ET programme on lead in gasoline, developed in the 80s, had 50% of lead in gasoline traded (cf 1% in others) and cost savings were estimated at 40 to 50%. The lead in gasoline was an averaging banking and trading scheme (ABT), subsequently also applied in trucks, marine, lawnmowers, and now snowmobiles. This programme and others (RECLAIM et al) are also proof that reduced costs could allow standards to be more stringent. David Harrison noted that there is a need for detailed analysis by governments and participating sectors and firms, to decide appropriate trading approach and allocation approach. He underlined that a sound initial allocation is both important and possible, and that

appropriate choice can encourage cost savings, avoid competitive product market distortions and avoid adverse distributional impacts.

**Jürgen Lefevere** (UK, FIELD) subsequently presented the findings of a joint FIELD and IEEP study on *'The Relationship between Emissions Trading and EU Environmental Legislation'*. The objective of the study was to explore the limitations under EU environmental law to setting up a domestic emissions trading regime in NEC substances and to explore possible amendments to the IPPC Directive that would allow fully-fledged domestic emissions trading. After an overview of key EU Directives he concludes that the installation-specific ELV and BAT requirement under the IPPC Directive significantly limits the scope of a domestic emissions trading regime. While domestic emissions trading can be implemented alongside the application of existing EU legislation, a fully-fledged trading regime would require an amendment of the EU legislative framework, in particular the IPPC Directive. Jürgen Lefevere continued with listing the criteria for such an amendment, including the requirement that emissions trading should be optional, that the need to set ELVs on the basis of BAT should be removed from the IPPC Directive, but that ELVs may be necessary to protect the local environment and that suitable monitoring, reporting and verification requirements must be in place. Additional criteria included the need to have an overall target equivalent to what would have been achieved under IPPC and equivalent enforcement, as well as the need to integrate emissions trading in the overall IPPC structure and the necessity to avoid a negative impact on the emission of other substances.

**Chris Dekkers** (NL, VROM/ENAP Project team) presented the results of a TNO study (based on earlier studies of RIVM) on *'NOx Emissions Trading and Air Quality Aspects in The Netherlands'*. Chris Dekkers underlined that national NOx emissions trading should be in line with EU legislation and early discussions with DG Environment showed a concern of compatibility with IPPC. This concern included whether ET provides a sufficiently high level of environmental protection, whether ET gives at least the same protection as BAT, and whether it can ensure that local quality standards are respected and hotspots avoided. VROM launched the study to explore how an ET system can meet all concerns and environmental objectives while offering cost-savings. In summary, three scenarios were developed to assess NOx emissions trading in comparison with two other options to reduce industrial emissions to 2010 target of 55 ktonnes. The three scenarios - (Simplified) Best Available Techniques (BAT); Emissions Trading (ET); and Equal Maximum Emissions Concentrations (EMEC) – were combined with a database for 2000 industrial point sources, to develop three 2010 data bases. When linked to a dispersion model this allowed the calculation of ground level NO<sub>2</sub> concentration levels for 2010 under the three scenarios. The conclusion was that an ET system will not lead to significant differences in ground concentrations across scenarios. (differences limited to 1 and 5 ug/m<sup>3</sup>) and that concerns of local air quality and hot spots could be overcome with an appropriate design of the ET scheme.

**Joe Kruger** (US EPA) presented the US experiences with *'Compliance, Monitoring and Enforcement under the US SO<sub>2</sub> trading regime'*. He underlined the key importance of good systems for emission measurement and reporting, data systems and registries, effective compliance and enforcement and the public access to data for the success of a trading regime. Goals of a good measurement regime are a complete accounting of mass emissions, maintaining environmental integrity through avoiding underestimation, consistency, transparency and simplicity of the regime, as well as the need to give incentives for accuracy and improvement of measurements, the cost effectiveness of the regime and its efficient administration. He stressed the critical role of information technology in the implementation

of a trading programme, and demonstrated the advantages of an online allowance tracking process. He also outlined the compliance mechanisms of the US SO<sub>2</sub> regime. That regime has an annual reconciliation requirement, with a 60 day reconciliation period. Reconciliation is done through an automatic comparing of the emissions data with the allowance tracking system. If a discrepancy is noted, an automatic penalty, almost 18 times higher than the actual market price of an allowance, is applied. Additional civil and criminal penalties exist for fraudulent emissions reporting and other types of violations.

**Jack Broadbent** (US EPA) presented the US experiences with ‘Monitoring and Enforcement under RECLAIM’. He remarked that the monitoring and reporting of emissions continues to be one of the most controversial aspects of the programme. He stressed that a good monitoring, record keeping and reporting regime is not only the foundation for the approval of the programme by US EPA, but also allows a fungible commodity, ensures support from the environmental community and the public in general. He gave an overview of the different monitoring requirements under RECLAIM, where each facility has a command and control foundation of monitoring for a flexible trading regime, varying from continuous monitoring systems for major sources to fuel-use based monitoring regimes for process units. He also outlined the programme’s extensive inspection and auditing requirements as well as the public accessibility of the monitoring results. While the monitoring has proved to be the most costly part of the programme, that has even increased administrative costs over the previous regime, these costs have been more than offset by the savings generated through the trading programme. Jack Broadbent furthermore outlined the severe penalties applied for infringements as well as the provisions for replacing missing data. He concluded that overall the programme had been very successful, with compliance rates of around 95% and having achieved a 75% reduction in emissions at a significantly lower cost than would have been possible through a traditional command and control regime.

#### **Session 4: Working Group Discussions**

**Three further parallel working groups** were held to allow workshop participants to explore three sets of issues. **Working group 1** discussed the opportunities for ‘*Emissions Trading within the EU Legislative Framework and Policy*’. **Working group 2** considered the ‘*Allocation Aspects of Emissions Trading*’. **Working group 3** looked at ‘*monitoring, compliance and enforcement: new roles for government and industry*’ – see boxes 2 to 4 for the suggested issues for discussion for the respective groups. The rapporteur of each working group reported the results of the discussions in that working group back to the plenary meeting, with the main points summarised after the boxes below.

## **Box 2: Discussion Issues for Working Group 1: Emissions trading within the EU legislative framework and policies**

- (How) do installation-specific ELVs limit the scope of an emissions trading regime?
  - The extent to which the IPPC Directive, with ELVs based on BAT, limits the scope for emissions trading is determined by the interpretation and implementation of the BAT concept (BAT as dynamic/evolving concept, BAT as minimum requirement, BAT determination as the result of a bargaining process, role of BREFs in establishing BAT etc.).
  - The Large Combustion Plant Directive could allow trading within its national plan option, but (how) would such trading be limited by the IPPC requirements
  - Waste Incineration Directive contains fixed minimum ELVs.
- Do we need to amend the EU legislative framework in order to allow Member States to implement domestic trading initiatives (and to what extent)?
- What role can or should the EU play in the establishment and implementation of NEC substance emissions trading?
  - Setting conditions/defining boundaries for implementing domestic trading regimes within scope of EU legislation
  - Facilitating transboundary cooperation on emissions trading
- What role can emissions trading play in establishing the Community's strategy post-2010, in particular also in the view of the Community's imminent enlargement.

## **Box 3: Discussion Issues for Working Group 2: ET and Allocation Aspects**

### **Design/setting overall target of the trading regime**

- Merits of cap and trade vs performance standards:
  - Certainty of reaching outcome
  - Acceptability vs risk of using allocation methodologies
- How is the overall target determined (Democratic control, transparency/public participation)?

### **Allocation within the cap**

- Advantages/disadvantages of various allocation methods:
  - Auctioning (with or without recycling of revenues)
  - Allocation free of charge (recognizing early action, correcting 'bad' behaviour, role of historical emissions etc.)
  - Phasing in of different allocation methods
- Role of performance standards in allocation
- Allocation to new entrants (buy from existing participants, same allocation as existing participants) and how to deal with exits.
- Transparency of the allocation process

#### **Box 4: Discussion Issues for Working Group 3: ET and monitoring, compliance and enforcement: new roles for government and industry**

##### **Monitoring and reporting**

- Balance of responsibility between government, industry and third parties?
- Role for external verification?
- Burden of proof?
- Who designs/adopts criteria for monitoring/reporting?
- Specificity of criteria for monitoring protocols?
- Availability/affordability of sufficiently accurate monitoring techniques?
- Flexibility/specificity of monitoring/reporting rules across different installations (type, size)?
- Linkages/synergies with other monitoring systems (EMS/IPPC)?
- Transparency/public access to emissions and trading data?

##### **Compliance and enforcement**

- What should be the frequency of inspections under emissions trading?
- Do you need a change in inspection methodology (role for self-inspection, possibly within sector)?
- Effective sanctions for non-compliance (penalties, 'borrowing', negative publicity etc.)

**The rapporteur of working group 1** summarised the discussion on '*Emissions Trading within the EU Legislative Framework and Policy*'. The group agreed that the requirement to use installation-specific ELVs does limit the scope of an emissions trading regime, but found that there is some room for trading depending on the interpretation of BAT and on the frequency that permits are updated. The group also found that trading under the current IPPC Directive would further promote the development of technology, thus again leading to stricter BAT standards. Since the development of new BAT standards is a requirement for updating permits under Article 13 of the IPPC Directive this would in itself again lead to more stringent ELVs and in turn to a reduced scope for trading. The group also discussed whether there is a need to amend the EU legislative framework to allow Member States to implement domestic trading initiatives. The group agreed that if we want a fully-fledged trading regime we need an amendment of the IPPC Directive, but some participants opposed such an amendment. The group also discussed the possibility to move from installation-specific ELVs to facility-specific ELVs, interpret BAT in a less strict manner or work with environmental quality standards or general rules. The group also found that some scope existed for trading before the deadline for the implementation of the IPPC Directive for existing installations in October 2007.

The group also discussed the role that the EU could play in the establishment and implementation of NEC substance emissions trading. It concluded that if changes are made in EU legislation, the EU institutions are necessarily involved and must set the ground rules for trading. There was also agreement that the Commission should facilitate further discussions on emissions trading and its role in the EU. There were however different views on whether the Commission should take a more proactive role and promote the use of emissions trading in the EU.

Working group 1 furthermore discussed what role emissions trading can play in establishing the Community's strategy post-2010, in particular also in view of the Community's imminent enlargement. The group concluded that the Commission should consider emissions trading as part of the CAFE programme, and that it could be a useful instrument in the Community's strategy to combat air pollution beyond 2010. The group also felt that experiences from the implementation of the IPPC Directive, the EU's greenhouse gas emissions trading regime and domestic trading regimes should be fed into the development of the post-2010 strategy.

During the short **Plenary Discussion** industry representatives noted the clear difference in opinion on the need to amend the IPPC Directive, but stressed the importance to allow countries who are willing to proceed with the implementation of a domestic trading regime to do so. The representative of one Member State remarked that it did not object to emissions trading in principle, but was hesitant to amend the IPPC Directive before that Directive was fully in force and lessons could be learned from its implementation.

**The Rapporteur of Working group 2** summarised the discussion on '*The Allocation Aspects of Emissions Trading*'. The group considered how the overall target in an emissions trading regime should be set and how allowances should be allocated to sources within this target. The group found broad agreement on the desirability in many situations of a mix of instruments. The group also looked at the role of timing, where it concluded that trading was a good instrument for medium and long term targets, but would probably only be relevant for certain sources and sectors (transport was for instance mentioned as a less likely candidate). The group also felt that there was a link between the target and the instrument chosen to achieve that target, as using a more cost-effective instrument can in principle allow stricter targets to be set, leading to greater environmental protection at the same or lower costs.

The rapporteur also noted a number of areas of concern that were raised in the discussion, and that need further investigation and regular assessment. The areas of concern include: the danger that grandfathering may reduce technological innovation; the need to avoid "instrument fatigue"<sup>5</sup>, and associated danger of creating unnecessary work through replacing effective instruments; and the need to avoid the creation of monopolies or strong players driving the weak out of the market through the buying of permits. The group also mentioned concerns that a wrongly designed trading regime would make a country less attractive for investment or that the allocation process would be used to keep players out of the market. The group found that while some of these concerns might not materialise, they needed to be addressed in order to increase stakeholders trust in the regime.

The working group also identified a number of areas for further clarification. These included a further clarification of the differences among various allocation alternatives, a clarification of terminology on 'absolute', 'relative' (including "averaging" and link to performance standard rate, PSR concept) and 'updating' trading regimes. The group also felt more information was needed on the options for auctioning and its implications as well as on the methods to recuperate the administrative costs of a trading regime. The rapporteur also noted the group's wish to further explore methods for dealing with indirect emissions and the role of a command and control permit in a trading regime.

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<sup>5</sup> Two participants noted that their national administrations have just come to understand and implement the most recent instrument – IPPC – and there is less interest in immediately trying to explore the true practical benefits of a further instrument, at least until the new instrument has had time to have an impact and the strengths and weaknesses can be properly appreciated.

During the **plenary discussion** following the presentation of the Working Group 2 conclusions, industry stressed that many of the issues that were raised could also be asked when discussing regular permitting. A representative of the European Commission pointed out that recent EU research showed that there is no proof that the application of BAT is putting European industry in a disadvantaged competitive position. The question was also asked whether the use of grandfathering (free allocation on historic emissions basis) can lead to competitive advantages/disadvantage. The chairman of working group 2 pointed out that the key to allocation is whether or not the distribution is fair, no matter whether permits were given away free of charge or sold<sup>6</sup>. He also pointed out that emissions trading should not be compared with a higher standard than other instruments<sup>7</sup>, but that there is a number of issues that must be resolved.

**The Rapporteur of Working group 3** presented the conclusions of the group's discussion on '*monitoring, compliance and enforcement: new roles for government and industry*' to the plenary. The rapporteur stressed the importance of a good monitoring and compliance regime for the success of a programme, the need to have transparency and the experience that the burden of proof for a flexible programme is greater than for most other regulatory instruments, mostly due to public mistrust. The group had discussed the experiences of the Netherlands, where the main elements of the monitoring requirements are based on those used for the implementation of the Waste Incineration and Large Combustion Plant Directives. Under these requirements, to be laid down in a ministerial decree, facilities must draw up their own monitoring protocols in line with these requirements, that are subsequently to be submitted for approval to the Emission Authority together with verification procedures and regular inspections to ensure that the emission monitoring is carried out according to the requirements and procedures in the approved monitoring protocol. are actually applied. The group also discussed possible additional monitoring requirements under a trading regime. It concluded that the Dutch system may require a different monitoring methodology since it is based on load (relative target). Although the group found that the European Pollutant Emission Register (EPER) brings load monitoring, it was felt that emissions trading may have to be more accurate.

The group also discussed whether monitoring has to be done by the State, e.g. the competent authority. In the US monitoring is overseen by the state to keep public credibility and trust, but in the longer term these functions may be outsourced. Participants also stressed the possibility to use ISO 14001 and EMAS and that flexibility may come with trust. A number of participants raised possible 'self incrimination' issues that could pose a problem in specific Member States. The group summarised the two different monitoring approaches in the Netherlands and in the US. In the US, information is collected continuously and submitted to EPA quarterly. Participating sources must also submit the results of certification tests to US EPA before monitors are used. In addition, there are a variety of ongoing performance certification tests that participating sources must undertake and submit to EPA for review. In the Netherlands, the central line is a ministerial decree with general monitoring requirements, an approved monitoring protocol developed by the company, and an annual emission report which is verified by an external and independent verifier.

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<sup>6</sup> And hence the allocation mechanism (or timing) could usefully reflect historic efforts to reduce emissions and hence not advantage the more polluting companies.

<sup>7</sup> In other words, practical real world instruments have to be compared with alternative practical real world instruments and not with ideal instrument formulations, otherwise the comparison could be misleading.

On monitoring experience the group found that in the EU the monitoring frequency varies with plant capacity and the role of third party verifiers is currently being debated. In the US, a designated representative of the company has to self certify compliance and monitoring has to be approved by the EPA. The US EPA also uses combination of site and electronic audits. The group found that the frequency of audits may be an issue as well as the need to avoid a duplication of efforts.

The rapporteur summarised the group's discussions on information to the public and public acceptance of emissions trading. The group found that while most EU Member States make information on site emissions available it cannot always be assumed that the public reads or understands this information. There is also still a lack of trust in third party auditors and industry self-reporting. The group did however stress that it is vital that information is made available<sup>8</sup>, but that it has to be put in context and is understandable. Although it may be difficult to communicate with the general public, it is most important that the information on emissions is made available. US experiences also show that the mere availability of data can drive down emissions. The group also explored the US experience of data handling and noted that EPA's data system was developed incrementally and improved continually over the past 12 years. It was also noted that US EPA is developing generic data system software, which they will make available to interested governments.

The group finally also discussed what penalties for non-compliance should be. It concluded that if penalties are too high, regulators may be reluctant to use them, but that they have to be high enough to be credible. Possible penalties that were discussed included penalties applied to subsequent allocations, financial penalties, 'naming and shaming' and removal from the trading scheme. The group felt that in any case the penalty should be proportionate to unit price on the market. Experience in the US had shown that as a result of technical progress, economic incentives, and stringent missing data procedures, the availability of emission monitoring equipment had gone up from around 90% in conventional air pollution programs in the 1980s to approximately 99% today.

During the **plenary discussion** following the presentation of the Working Group 3 conclusions a representative of industry questioned the need for monitoring to be stricter than under a command and control regime. He suggested that there should not be a difference. He also questioned whether the public mistrust was well-founded or just an issue of perception. An NGO participant stressed the importance of good and especially accessible data. A Member State representative emphasised that solid monitoring is crucial for the trust in a trading regime. A Commission representative underlined the difference between monitoring information that we "need" to know and that is "nice" to know. With emissions trading information that is otherwise nice to know becomes essential. He also pointed at the general trend in EU environmental policy to increase the availability of information on what happens at individual plant level, including through the implementation of the European Pollutant Emission Register which will become available via the Commission's or the European Environment Agency's website.

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<sup>8</sup> In the Netherlands the 300 largest industrial facilities produce an environmental report which is made available to the general public.

## **Chairman's workshop conclusions**

The **Workshop Chair, Hugo von Meijenfeldt**, closed the workshop with '*A Summary of Findings and Conclusions of the Workshop and Recommendations for Further Action*'. He pointed out that his remarks would be limited to collecting some conclusions from day 2, but that more elaborate written conclusions would be made available later on, and that there would also be a written workshop report.

He concluded that EU legislation does limit the possibilities for domestic emissions trading to a certain extent, but that this depends on the design of the trading regime, the interpretation of EU legislation, in particular the IPPC Directive and the BAT requirement contained therein, as well as on the frequency at which permits are updated.

He furthermore addressed the need for further experience. While there is much experience with the implementation of emissions trading in the United States, we need more experience in Europe and make the information on that experience available. He pointed out the dilemma that when individual countries see a need for more room than is given to them by EU legislation, then a discussion is necessary on how this room can be given to them. The chair did, however, stress that the result of these discussions should not lead to a lowering of standards and environmental quality.

The chair furthermore pointed out the complexity of the discussions on allocation and the necessity of a solid monitoring and compliance regime. While penalties should not be out of proportion they should also not be too low as to give disincentives for compliance.

The chair concluded that emissions trading has to be seen as part of a mix of environmental instruments. It has strong, but also weak points and there are issues that need more clarification. Member States should be allowed to use this instrument in areas in which it can bring positive results, while respecting local environmental quality standards and maintaining an integrated approach in environmental policy. Emissions trading is a very interesting instrument, that has great potential for securing an environmental outcome that goes beyond what could have been achieved at the same price with traditional regulatory approaches. If there is such an opportunity, why not try it?

## **5. Workshop conclusions**

### **The benefits of emissions trading**

The discussions during the workshop showed that the majority of participants had a generally positive attitude towards domestic emissions trading as a tool to lower emissions of NEC substances. Emissions trading was seen as a useful addition to the set of regulatory tools available to policy makers. Most workshop participants felt that a well-designed trading regime can give not only certainty about meeting a specific environmental target, but also help meet that target in a more cost-effective way compared with other policies. Many Participants furthermore felt that trading can give strong, market-driven incentives for technological advances and can help generate additional information on costs and advantages of emission reduction measures.

## **Possible concerns that need to be addressed**

The participants however also noted a number of potential disadvantages of emissions trading. These include that the administrative inputs and costs of a trading regime could be higher than traditional control measures, although it was also noted that these higher costs might be offset by the cost savings for industry due to the use of the instrument. Appropriate planning would be required to ensure that the administrative inputs are in place to ensure a smooth functioning system.

Participants also stressed the need for effective and transparent monitoring, verification and compliance tools to ensure the public acceptability of the trading regime as well as the acceptability of the regime and the units traded in the market. Participants furthermore noted the need to avoid local environmental and in particular health related impacts, and the vital role of emission limit values in this respect. Further the participants noted the need to maintain an integrated assessment of the environmental impacts of an industrial installation to avoid shifting pollution between different environmental media, and thus protect the “integrated pollution prevention and control philosophy”.

Other areas of concern included the need to avoid “instrument fatigue” and associated danger of creating unnecessary work through replacing effective instruments as well as the need to avoid the creation of monopolies or strong players driving the weak out of the market through the buying of permits. Participants found that while some of these concerns might not materialise, they needed to be addressed in order to increase stakeholders trust in the regime.

## **Emissions trading within the international and EU legal framework**

The workshop participants found that the current framework of EU environmental legislation limits the scope, but does not exclude the implementation of an appropriately designed domestic emissions trading regime for NEC substances. Participants were however of the opinion that the actual scope for domestic trading in parallel to the application of current EU legislation depends on the design of the trading regime, the interpretation of EU legislation, in particular the IPPC Directive and the BAT requirement contained therein, as well as on the frequency at which permits are updated. The group concluded that in order to allow the implementation of a fully-fledged emissions trading regime<sup>9</sup> an amendment of the EU legislative framework would be necessary. However a few participants were hesitant to discuss such amendments before there was an opportunity to evaluate the effectiveness of the current framework. These participants stressed the benefits of the regulatory approach of the IPPC-Directive, in particular the instrument of general binding rules according to Article 9 para. 8 of the IPPC-Directive. This instrument can also be used for existing installations. It gives in the opinion of these participants per definition no room for arbitrary decisions by authorities on ELVs to be complied with by existing installations. A fully fledged domestic system could function and be implemented, provided that the principles and results of the IPPC are not compromised.

## **Design issues**

Design issues focused both on the issue of overall design of ET (cap and trade and averaging / relative targets / performance standard rates) and on specific elements of the scheme, notably monitoring, enforcement, and allocation. There was also a comment that the design question should be seen more broadly, namely on designing the right mix or portfolio of regulatory

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<sup>9</sup> A more limited ET system could be launched without requiring an amendment.

instruments, with ET as being one of the instruments within that mix, and the need for a design of ET building on its strong points and addressing weak points. Regarding allocation, monitoring and verification, and enforcement:

*Allocation:* The group explored various allocation systems, notably focusing on grandfathering and auctioning as well as hybrids, such as partial grandfathering and partial auctioning or initial 100% grandfathering following by incremental growth in auctioning as share “grandfathered” is reduced and allowances available for auction. It was noted that the proposed Dutch ET system includes an “automatic allocation mechanism” through the use of performance standard rates (PSR) It was also noted that the US schemes tended to favour grandfathering, and auctioning was only rarely used and for only a generally small share of allowances. Once the overall cap has been set and thus the ambition level has been defined, the important issue regarding allocation is then that of dividing the cake and whether the dividing into parts allocated to the various players is seen or perceived as fair by the existing players (some of whom will have made more historic efforts at environmental improvements than others) as well as by new entrants. Fairness is not necessarily easy to achieve as in “essence” the allocation of allowances is a “zero-sum-game”. However, any allocation needs to take these elements into account as well as the issue of competitiveness, principles such as the polluter pays principle and incentives for innovation and environmental improvements.

*Monitoring and verification:* Some participants underlined that the monitoring and verification system for an ET scheme is likely to need to be more extensive than current systems. This relates to the fact that each tonne of emission (reduction) has an economic value and thus data need to be accurate, and also the fact that the credibility issue will be greater for a flexible program than for a command-and-control instrument and hence greater transparency will be required for public acceptability of the use of the “new” instrument. Furthermore, providing transparent data provision is an important mechanism to build trust between industry and regulator and subsequently the public. The choice of what monitoring data is required (eg continuous monitoring, monthly reporting to authorities etc), will depend on substance that the trading system covers and needs to be noted in an approved monitoring protocol.

*Enforcement:* The group underlined that enforcement is a key issue if ET is to be a credible system. It is clear that penalties are required, but these should not be so high so as to discourage their use, nor indeed so low as to make non-compliance a sensible “option”. It was underlined that possible penalties include not just financial penalties, but also penalties through a reduction in subsequent allocations, the “name and shame” approach and of course withdrawal from the scheme. Where a financial penalty is in place, it should be at least two or three times higher than the trading price in the ET scheme. Furthermore, there can be different grades of penalties depending on whether the penalty is for a first offence, second offence, or repeated offence, with penalties becoming more severe with the number of infractions. Site inspection is clearly required to complement, as well as support, the monitoring process.. It should include additional efforts at inspecting monitoring equipment to make sure measurements relate to actual emissions, and hence protect the viability of the ET scheme. Importantly, inspections continue to be vital to make sure that local environmental standards are protected.

## **Conclusion: the way forward**

The group felt that although there was growing experience with the use of emissions trading, this experience was still relatively limited. Participants generally found that further experience with the implementation of trading at a domestic level would be valuable. Member States that wished to implement domestic trading regimes should use the opportunity to do so.

Although a large number of participants supported creating more space within EU environmental legislation to allow individual Member States to implement fully-fledged trading regimes, this idea did not have unanimous support. Participants did, however, feel that further experiences with emissions trading would be a benefit not just to the country implementing such regime, but also to other countries that are considering using this tool.

The group encouraged a continued exchange of experiences with the use of emissions trading and asked the European Commission to play an active role in this exchange. Participants also supported the discussion of emissions trading as part of the discussions under the European Commission's Clean Air For Europe (CAFE) programme, where it was felt that emissions trading could play an important role in the mix of instruments to achieve further environmental quality targets up to 2020.

The challenge for the coming years will be one of how interested Member States could launch fully fledged domestic ET systems within the IPPC-framework and under sufficient guarantees such that the core principles and results of IPPC are not compromised.

## Abbreviations

ABT	Averaging Banking and Trading scheme
BAT	Best Available Technique
CAFÉ	Clean Air For Europe
CR	Czech Republic
DG	Directorate General (European Commission)
EIA	Environmental Impact Assessment
ELV	Emissions Limit Value
EMAS	Eco Management and Audit Scheme
EMEC	Equal Maximum Emissions Concentrations
EMS	Environmental Management System
ENAP	Exploring New Approaches in regulating industrial installations
EPA	Environmental Protection Agency
EPER	European Pollutant Emission Register
EQS	Environmental Quality Standard
ET	Emissions Trading
EU	European Union
FIELD	Foundation for International Environmental Law and Development
GHG	Greenhouse Gas
GJ	Giga Joule
IEEP	Institute for European Environmental Policy
IMPEL	The European Union Network for the Implementation and Enforcement of Environmental Law
IPC	Integrated Pollution Control (UK scheme)
IPPC	Integrated Pollution Prevention and Control
ISO 14001	International Standards Organisation 14001: Environmental Management Systems
LCPD	Large Combustion Plant Directive
NEC	National Emissions Ceiling
NERA	National Economic Research Associates
NGO	Non Governmental Organisation
NO <sub>x</sub>	Nitrogen Oxides
PM	Particulate Matter
PPP	Polluter Pays Principle
PSR	Performance Standard Rate
RECLAIM	The Regional Clean Air Incentives Market
SD	Sustainable Development
SME	Small and Medium Enterprise
SO <sub>2</sub>	Sulphur Dioxide
VOCs	Volatile Organic Compounds
UK EA	United Kingdom Environment Agency
VA	Voluntary Agreement
VROM	Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu (Ministry of Housing, Spatial Planning and the Environment)

# **Annex I: Participants ENAP Workshop Emissions Trading 21 and 22 November 2002**

## Participants ENAP workshop Emissions Trading 21 and 22 November 2002

	Family Name	First Name	Organisation	Category	Country	E-Mail
1	Grozeva	Ivona	Ministry of Environment and Water	Accession Country	Bulgaria	<a href="mailto:ji-grozeva@moew.government.leg">ji-grozeva@moew.government.leg</a>
2	Chmelik	Tomas	Ministry of Environment of the Czech Republic	Accession Country	Czech Republic	<a href="mailto:chmelik@env.cz">chmelik@env.cz</a>
3	Pribylova	Monika	Czech Environmental Institute-Integrated Prevention Agency	Accession Country	Czech Republic	<a href="mailto:pribylova@ceu.cz">pribylova@ceu.cz</a>
4	Zahradnikova	Marie	Ministry of Environment of the Czech Republic	Accession Country	Czech Republic	<a href="mailto:marie_zahradnikova@env.cz">marie_zahradnikova@env.cz</a>
5	Lahtvee	Valdur	EESTI Energia AS	Accession Country	Estonia	<a href="mailto:valdur.lahtvee@energia.ee">valdur.lahtvee@energia.ee</a>
6	Sirendi	Aare	Estonian Environmental Inspectorate	Accession Country	Estonia	<a href="mailto:aare.sirendi@kki.ee">aare.sirendi@kki.ee</a>
7	Juozapaitis	Aidas	Ministry of Environment	Accession Country	Lithuania	<a href="mailto:a.juozapaitis@aplinkuma.lt">a.juozapaitis@aplinkuma.lt</a>
8	Planciunaite	Angele	Panevezys Reg. Environmental Prot. Dep., Environmental Min.of Lithuania	Accession Country	Lithuania	<a href="mailto:praad@takas.lt">praad@takas.lt</a>
9	Varró	Tomás	Slovak Inspectorate of Environment	Accession Country	Slovakia	<a href="mailto:varro@pobox.sk">varro@pobox.sk</a>
10	Skamla	Pavol	Slovak Inspectorate of Environment	Accession Country	Slovakia	<a href="mailto:skamla@sizp.sk">skamla@sizp.sk</a>
11	Gislev	Magnus	European Commission	European Comm.	Belgium	<a href="mailto:magnus.gislev@cec.eu.int">magnus.gislev@cec.eu.int</a>
12	Sponar	Michel	European Commission	European Comm.	Belgium	<a href="mailto:michel.sponar@cec.eu.int">michel.sponar@cec.eu.int</a>
13	Vainio	Matti	European Commission	European Comm.	Belgium	<a href="mailto:matti.vainio@cec.eu.int">matti.vainio@cec.eu.int</a>
14	Zapfel	Peter	European Commission	European Comm.	Belgium	<a href="mailto:peter.zapfel@cec.eu.int">peter.zapfel@cec.eu.int</a>
15	Eldevik	Froyois	Ministry of Petroleum and Energy	European Country	Norway	<a href="mailto:fe@oed.dep.no">fe@oed.dep.no</a>
16	Mueller	Tomas	Verband der Elektrizitätsunternehmen Österreichs	Industry	Austria	<a href="mailto:t.mueller@veoe.at">t.mueller@veoe.at</a>

	Family Name	First Name	Organisation	Category	Country	E-Mail
17	Barrasso	Grace	Alcoa	Industry	Belgium	<a href="mailto:grace.barrasso@alcoa.com">grace.barrasso@alcoa.com</a>
18	Burdenuk	Natalie	EMA	Industry	Belgium	<a href="mailto:europe@emissions.org">europe@emissions.org</a>
19	Conti	Bruno	Europia (European Petroleum Industry Association)	Industry	Belgium	<a href="mailto:bruno.conti@europia.com">bruno.conti@europia.com</a>
20	Johansson	Daniel	Eurelectric	Industry	Belgium	<a href="mailto:djohansson@eurelectric.org">djohansson@eurelectric.org</a>
21	Kjeldsen	Laila	ADS Insight	Industry	Belgium	<a href="mailto:l.kjeldsen@ads-insight.com">l.kjeldsen@ads-insight.com</a>
22	Tjan	Peter	Europia (European Petroleum Industry Association)	Industry	Belgium	<a href="mailto:peter.tjan@europia.com">peter.tjan@europia.com</a>
23	Bartaire	Jean-Guy	EDF	Industry	France	<a href="mailto:jean-guy.bartaire@edf.fr">jean-guy.bartaire@edf.fr</a>
24	Boquet	Nicolas	Association Française des Entreprises Privées	Industry	France	<a href="mailto:fn.boquet@afep.com">fn.boquet@afep.com</a>
25	Poot-Seldeslachts	Brigitte	Totalfinaelf France	Industry	France	<a href="mailto:brigitte.poot@totalfinaelf.com">brigitte.poot@totalfinaelf.com</a>
26	Bär	Monika	BASF AG	Industry	Germany	<a href="mailto:monika.baer@basf-ag.de">monika.baer@basf-ag.de</a>
27	Hein	Joachim	BDI	Industry	Germany	<a href="mailto:j.hein@bdi-online.de">j.hein@bdi-online.de</a>
28	Libuda	Thilo	Ceramics Sinox Catalysts	Industry	Germany	<a href="mailto:thilo.libuda@siemens.com">thilo.libuda@siemens.com</a>
29	Jestin	Louis	Elektrocieplownia Krakow	Industry	Poland	<a href="mailto:l.jestin@eck-sa.krakow.pl">l.jestin@eck-sa.krakow.pl</a>
30	Åhman	Markus	IVL Swedish Environmental Research Institute	Industry	Sweden	<a href="mailto:markus.ahman@ivl.se">markus.ahman@ivl.se</a>
31	Hoff	Ton	Shell Nederland BV	Industry	The Netherlands	<a href="mailto:ton.a.b.m.hoff@shell.com">ton.a.b.m.hoff@shell.com</a>
32	Regtuit	Hans	Corus Staal BV	Industry	The Netherlands	<a href="mailto:hans.regtuit@corusgroup.com">hans.regtuit@corusgroup.com</a>
32	V.d.Broek	Jan	VNO / NCW	Industry	The Netherlands	<a href="mailto:JHGvdBroek@vno-ncw.nl">JHGvdBroek@vno-ncw.nl</a>
33	Thomassen	Pieter	ExxonMobil	Industry	The Netherlands	<a href="mailto:pieter.thomassen@exxonmobil.com">pieter.thomassen@exxonmobil.com</a>
34	Van Seters	Jan	Dow Benelux BV	Industry	The Netherlands	<a href="mailto:jvanseters@dow.com">jvanseters@dow.com</a>
35	Baverstock	Suzie	BP	Industry	United Kingdom	<a href="mailto:baverssj@bp.com">baverssj@bp.com</a>
36	Davis	Anthony	INCO Europe Ltd	Industry	United Kingdom	<a href="mailto:tdavis@inco.com">tdavis@inco.com</a>
37	Harsham	Keith	BP International Ltd	Industry	United Kingdom	<a href="mailto:harshakd@bp.com">harshakd@bp.com</a>
38	Robinson	Duncan	Innogy Ple	Industry	United Kingdom	<a href="mailto:duncan.robinson@innogy.com">duncan.robinson@innogy.com</a>
39	Maitz	Karl-Maria	Fed.Ministry of Agriculture, Forestry, Environment and Water Management	Member State	Austria	<a href="mailto:karl-maria.maitz@bmlfuw.gt.at">karl-maria.maitz@bmlfuw.gt.at</a>
40	Wollansky	Gertraud	Fed.Ministry of Agriculture, Forestry, Environment and Water Management	Member State	Austria	<a href="mailto:gertraud.wollansky@bmlfuw.gv.at">gertraud.wollansky@bmlfuw.gv.at</a>

	Family Name	First Name	Organisation	Category	Country	E-Mail
41	De Splenter	Natasja	Ministerie van de Vlaamse Gemeenschap -Aminal - Aminabel	Member State	Belgium	<a href="mailto:natasja.desplenter@lin.vlaanderen.be">natasja.desplenter@lin.vlaanderen.be</a>
42	Sahivirta	Elise	Finnish Environment Institute	Member State	Finland	<a href="mailto:elise.sahivirta@ymparisto.fi">elise.sahivirta@ymparisto.fi</a>
43	Barthe	Fabien	Drire Rhone-Alpes	Member State	France	<a href="mailto:fabien.barthe@industrie.gouv.fr">fabien.barthe@industrie.gouv.fr</a>
44	Blanc	Patricia	Ministry of Environment	Member State	France	<a href="mailto:patricia.blanc@environnement.gouv.fr">patricia.blanc@environnement.gouv.fr</a>
45	Delalande	Daniel	French Ministry of Ecologyand Sustainable Development	Member State	France	<a href="mailto:daniel.delalande@environnement.gouv.fr">daniel.delalande@environnement.gouv.fr</a>
46	Grisoni	Philippe	Ministere de L'economie, des Finances et de L'industrie	Member State	France	<a href="mailto:philippe.grisoni@industrie.gouv.fr">philippe.grisoni@industrie.gouv.fr</a>
47	Flechsig	Susanne	Federal Ministry of Economics & Labour	Member State	Germany	<a href="mailto:susanne.flechsig@bmwa.bund.de">susanne.flechsig@bmwa.bund.de</a>
48	Kühn	Jürgen	Bundesumwelt Ministerium	Member State	Germany	<a href="mailto:juergen.kuehn@bmu.bund.de">juergen.kuehn@bmu.bund.de</a>
49	Schärer	Bernd	Federal Environmental Agency	Member State	Germany	
50	Schmid	Elisabeth	Umweltbundesamt	Member State	Germany	<a href="mailto:elisabeth.schmid@uba.de">elisabeth.schmid@uba.de</a>
51	Theben	Michael	Ministry of Environment: Northrhine Westfalen	Member State	Germany	<a href="mailto:michael.theben@munlv.nrw.de">michael.theben@munlv.nrw.de</a>
52	Waskow	Siegfried	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety	Member State	Germany	<a href="mailto:siegfried.waskow@bmu.bund.de">siegfried.waskow@bmu.bund.de</a>
53	Raudner	Astrid	APAT	Member State	Italy	<a href="mailto:raudner@apat.it">raudner@apat.it</a>
54	Thewes	Frank	Environment Agency Luxembourg	Member State	Luxembourg	<a href="mailto:thewes@aev.etat.lu">thewes@aev.etat.lu</a>
55	Van Kasteren	Michele	Ministry of Environment	Member State	Luxembourg	<a href="mailto:michele.vankasteren@mev.etat.lu">michele.vankasteren@mev.etat.lu</a>
56	Barrecheguren	Chiqui	Xunta de Galicia. Consellería de Medio Ambiente	Member State	Spain	<a href="mailto:chiqui.barrecheguren.beltran@xunta.es">chiqui.barrecheguren.beltran@xunta.es</a>
57	Rodriguez Roldán	Ana	Ministry of Environment	Member State	Spain	<a href="mailto:ana.rodriguez@sglapr.mma.es">ana.rodriguez@sglapr.mma.es</a>
58	Bengtsson	Håkan	Swedish Environmental Protection Agency	Member State	Sweden	<a href="mailto:hakan.bengtsson@naturvardsverket.se">hakan.bengtsson@naturvardsverket.se</a>
59	Von Gersdorff	Agnes	Swedish Industry Ministry	Member State	Sweden	<a href="mailto:agnes.von-gersdorff@industry.ministry.se">agnes.von-gersdorff@industry.ministry.se</a>
60	Davelaar	Henriette	Minsterie VROM	Member State	The Netherlands	<a href="mailto:henriette.davelaar@minvrom.nl">henriette.davelaar@minvrom.nl</a>

	Family Name	First Name	Organisation	Category	Country	E-Mail
61	De Jeu	Elly	Ministry of Economic Affairs	Member State	The Netherlands	<a href="mailto:e.g.dejeu@minez.nl">e.g.dejeu@minez.nl</a>
62	van Kuijen	Kees	Netherlands Emission Authority in formation	Member State	The Netherlands	<a href="mailto:kees.vankuijen@minvrom.nl">kees.vankuijen@minvrom.nl</a>
63	Kohl	Annelie	Minsterie VROM	Member State	The Netherlands	<a href="mailto:annelie.kohl@imh-hi.dgm.minvrom.nl">annelie.kohl@imh-hi.dgm.minvrom.nl</a>
64	Hintum		Minsterie VROM	Member State	The Netherlands	<a href="mailto:mariska.vanhintum@minvrom.nl">mariska.vanhintum@minvrom.nl</a>
65	Van Tol	Iris	Minsterie VROM	Member State	The Netherlands	<a href="mailto:iris.vantol@minvrom.nl">iris.vantol@minvrom.nl</a>
66	Davies	Neil	Environment Agency	Member State	United Kingdom	<a href="mailto:neil.davies@environment-agency.gov.uk">neil.davies@environment-agency.gov.uk</a>
67	Howes	Chris	Environment Agency	Member State	United Kingdom	<a href="mailto:chris.howes@environment-agency.gov.uk">chris.howes@environment-agency.gov.uk</a>
68	Vincent	Richard	Department for Environment, Food and Rural Affairs	Member State	United Kingdom	<a href="mailto:richard.vincent@defra.gsi.gov.uk">richard.vincent@defra.gsi.gov.uk</a>
69	Jepsen	Dirk	Ökopol Ltd	NGO	Germany	<a href="mailto:jepsen@oekopol.de">jepsen@oekopol.de</a>
70	Agren	Christer	Swedisch NGO Secretariat on ACID Rain	NGO	Sweden	<a href="mailto:cagren@acidrain.org">cagren@acidrain.org</a>
71	De Vries	Jan	Stichting Natuur & Milieu	NGO	The Netherlands	<a href="mailto:j.de.vries@snm.nl">j.de.vries@snm.nl</a>
72	Elzenga	Hans	RIVM	NGO	The Netherlands	<a href="mailto:hans-je.elzenga@rivm.nl">hans-je.elzenga@rivm.nl</a>
73	James	Lesley	Friends of the Earth (England, Wales & N. Ireland)	NGO	United Kingdom	<a href="mailto:lesleyj@foe.co.uk">lesleyj@foe.co.uk</a>
74	Wittoeck	Peter	Universiteit Gent	Other	Belgium	<a href="mailto:peter.wittoeck@rug.ac.be">peter.wittoeck@rug.ac.be</a>
75	Wesseling	Joost	TNO	Other	The Netherlands	<a href="mailto:J.P.Wesseling@mep.tno.nl">J.P.Wesseling@mep.tno.nl</a>
76	Broadbent	Jack	US Environmental Protection Agency	United States	USA	<a href="mailto:broadbent.jack@epa.gov">broadbent.jack@epa.gov</a>
77	Harrison	David	NERA	United States	USA	<a href="mailto:david.harrison@nera.com">david.harrison@nera.com</a>
78	Kruger	Joseph	U.S. EPA Clean Air Markets Division	United States	USA	<a href="mailto:kruger.joe@epa.gov">kruger.joe@epa.gov</a>
79	Podar	Mahesh	U.S. EPA, Office of Water	United States	USA	<a href="mailto:podar.mahesh@epa.gov">podar.mahesh@epa.gov</a>
80	Dekkers	Chris	VROM	Organisation	The Netherlands	<a href="mailto:chris.dekkers@minvrom.nl">chris.dekkers@minvrom.nl</a>
81	Kramers	Rob	InfoMil	Organisation	The Netherlands	<a href="mailto:kramers@infomil.nl">kramers@infomil.nl</a>
82	Koot	Marleen	InfoMil	Organisation	The Netherlands	<a href="mailto:pauwels@infomil.nl">pauwels@infomil.nl</a>
83	Pauwels	Mieke	InfoMil	Organisation	The Netherlands	<a href="mailto:koot@infomil.nl">koot@infomil.nl</a>
84	Teekens	Jan	VROM	Organisation	The Netherlands	<a href="mailto:jan.teekens@minvrom.nl">jan.teekens@minvrom.nl</a>
85	Von Meijenfeldt	Hugo	VROM	Organisation	The Netherlands	<a href="mailto:humeijen@minvrom.nl">humeijen@minvrom.nl</a>
86	Ten Brink	Patrick	IEEP	Organisation	United Kingdom	<a href="mailto:ptenbrink@ieeplondon.org.uk">ptenbrink@ieeplondon.org.uk</a>
87	Lefevere	Jürgen	FIELD	Organisation	United Kingdom	<a href="mailto:jurgen.lefevere@field.org.uk">jurgen.lefevere@field.org.uk</a>

## **Annex II: Workshop Programme**

# WORKSHOP EMISSIONS TRADING NEC SUBSTANCES (IN PARTICULAR NO<sub>x</sub> AND SO<sub>x</sub>)

Date: 21 and 22 November 2002

Location: Kurhaus - The Hague / Scheveningen – The Netherlands

## DAY 0 (20 November)

19:00	Registration of participants	location: Galerij Noord	2:00
19:00	Buffet and drinks	location: Galerij Noord	2:00

## DAY 1 (21 November)

### What can Emissions Trading contribute to Environmental Policy ?

8:00	Registration of participants	location: Foyer Noord	1:00
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location: plenary room Adama Zijlstra

9:00	Welcome	Chairman	Hugo von Meijenfeldt	0:05
9:05	Opening address by the Director of the Directorate Climate Change and Industry (VROM)	Speaker	Tilly Zwartepoorte	0:15
9:20	Introduction to ENAP project (VROM)	Speaker	Jan Teekens	0:10
9:30	Summary/conclusions of questionnaires (Field)	Speaker	Jürgen Lefevere	0:10
9:40	Order of the workshop	Chairman	Hugo von Meijenfeldt	0:10

location: plenary room Adama Zijlstra

### Session 1

<b>Presentations: Review of emissions trading in the US, the Netherlands and the UK</b>				
9:50	Experiences in the US	Speaker	Joe Kruger Jack Broadbent	0:30
10:20	Experiences in the Netherlands	Speaker	Chris Dekkers	0:30
10:50	Experiences in the United Kingdom	Speaker	Neil Davies	0:20
11:10	Coffee / Tea		location: Foyer Noord	0:30
<b>Presentations: Various views on emissions trading / economic instruments</b>				
11:40	European Commission	Speaker	Matti Vainio	0:20
12:00	Czech Republic	Speaker	Tomas Chmelik	0:20
12:20	Sweden	Speaker	Håkan Bengtsson	0:20
12:40	Germany	Speaker	Uwe Lahl	0:20
13:00	Lunch		location: Kurzaal	1:30

## Session 2

<b>Working Group Discussions</b>				
14:30	Three parallel Working Group: on exploring emissions trading			1:30
	<i>location: sub-room Goldbeck</i> - working group 1	Chairman Rapporteur	Europ. Industry DG Environment	
	<i>Location: sub-room Koos Speenhoff</i> - working group 2	Chairman Rapporteur	United States Czech Republic	
	<i>Location: sub-room Lou Bandy</i> - working group 3	Chairman Rapporteur	Netherlands Unit Kingdom	
16:00	<b>Coffee / Tea</b>	<i>location: Foyer Noord</i>		0:30
<i>location: plenary room Adama Zijlstra</i>				
16:30	Reporting back Working Group Discussions			
	- working group 1	Rapporteur	DG Environment	0:15
	- working group 2	Rapporteur	Czech Republic	0:15
	- working group 3	Rapporteur	United Kingdom	0:15
17:15	Plenary discussion			0:30
<i>location: plenary room Adama Zijlstra</i>				
17:45	Summary of findings and conclusions of day 1	Chairman	Hugo von Meijenfeldt	0:15
18:00	Closure	Chairman	Hugo von Meijenfeldt	
19:30	<b>Drinks</b>	<i>location: Galerij Noord</i>		
20:00	<b>Dinner</b>	<i>location: Cor Ruyszaal</i>		

**DAY 2 (22 November)**  
**What are the Constraints of Emissions Trading ?**

*location: plenary room Adama Zijlstra*

9:00	Welcome, summary of the discussions of day 1	Chairman	Hugo von Meijenfeldt	0:15
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*location: plenary room Adama Zijlstra*

**Session 3**

<b>Presentations: Various aspects and issues related to Emissions Trading</b>				
9:15	Allocation in various systems of emissions trading (US)	Speaker	David Harrison	0:20
9:35	Relationship between emissions trading and EU legislation (Field)	Speaker	Jürgen Lefevere	0:20
9:55	Modeling NOx emissions trading and air quality aspects (VROM)	Speaker	Chris Dekkers	0:15
10:10	Monitoring, compliance, enforcement & emissions trading (US)	Speaker	Jack Broadbent Joe Kruger	0:20

10:30	<i>Coffee / Tea</i>	<i>location: Foyer Noord</i>		0:30
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**Session 4**

<b>Working Group Discussions</b>				
11:00	Three parallel working Group Discussions			1:30
	<i>Location: sub-room Goldbeck</i> - working group 1 (ET within the EU legislative framework and policy)	Chairman Rapporteur	United Kingdom Sweden	
	<i>Location: sub-room Koos Speenhoff</i> - working group 2 (ET and allocation aspects)	Chairman Rapporteur	Unit States Austria	
	<i>Location: sub-room Lou Bandy</i> - working group 3 (ET and monitoring, compliance and enforcement: new roles for government and industry)	Chairman Rapporteur	Netherlands France	

12:30	<i>Lunch</i>	<i>location: Kurzaal</i>		1:15
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*location: plenary room Adama Zijlstra*

13:45	Reporting back and discussion on WG discussions			
	- working group 1	Rapporteur	Sweden	0:15
	- plenary discussion			0:15
	- working group 2	Rapporteur	Austria	0:15
	- plenary discussion			0:15
	- working group 3	Rapporteur	France	0:15
	- plenary discussion			0:15

15:15	<i>Coffee / Tea</i>	<i>location: Foyer Noord</i>		0:30
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*location: plenary room Adama Zijlstra*

15:45	Summary of findings and conclusions of the workshop And recommendations for further action	Chairman	Hugo von Meijenfeldt	0:30
16:15	Closure	Chairman	Hugo von Meijenfeldt	

## Annex III: Questionnaire results

The Annex contains the summary tables of the survey questionnaires. This is merely an indication of country activities, based on information from the survey. VROM welcomes comments by additional countries and additional comments by those who have already responded. The main results of the survey are:

- *ET and NEC Substances.* There is explicit trading with actual trades currently only for CO<sub>2</sub> in Denmark and UK. Furthermore, bubbles exist with allocation but no actual formalised trading in several countries, including Finland (NEC leads to bubble with allocations), Slovak Republic (quotas for SO<sub>2</sub>), and the UK (for power sector). In some countries, trading schemes are planned, notably Italy (for bubble system for licenses re emissions to air). Respondents also highlighted the high level of interest in the issue: eg Czech Republic; Estonia (see linkage to NEC Directive); Germany (studies related to waste and cleaner energy certificates); Ireland (ibid re NEC); and UK (consultation paper).
- *EMS and Permitting:* The existence of an accredited environmental management system (EMS) can lead to a number of regulatory benefits for installations. Permit procedures are simplified in Italy, Austria (single consolidated permit), and the Czech Republic (facilitates IPPC application). The permit validity timescale is extended in Italy. There are lower charges for permits for EMS accredited installations in Finland (informal linkage: EMS can lead to lower costs, hence lower charges) and the UK (through risk assessment: lower IPPC charges). An EMS is seen as facilitating monitoring and reporting (Germany; Ireland; and France), and reduced the inspection “burden”: (eg Estonia, Germany (fewer visits), and the UK through reduced risk rating). While many countries have benefits of one type or another, other countries have no benefits linked to the existence of an accredited EMS scheme (eg Sweden and Slovak Republic). The insights from different experience and ideas on what mechanisms are constructive and appropriate rewards for accredited EMS will be discussed in the second ENAP workshop.
- *Multi-installation permitting:* Overall multi-installation permitting depends on site location, ownership, and technical function. While in some cases there is no possibility of multi-site permits, there are cases where it is an explicit legal possibility (eg Lithuania) to link, or possible through definition of “installation”, or indeed possible through linked instruments (Eg VAs). The question was raised as to whether there are useful unexplored possibilities here. More common are same owner, same site multi-installation permits; these exist in Estonia; France, Lithuania, Austria, Finland, Germany and Sweden. Furthermore, there are some multi-installation permits, where the installations have an integrated technical function; this takes place in Finland and Germany. Yet in other countries there is no possibility of multi-installation permitting such as the Czech Republic, Italy, SR and the UK. Several countries, inter alia the CR, Ireland, and the Netherlands underlined their particular interest in exploring this question and it will be the focus of the third ENAP workshop.

Country specific details from the survey are presented in the following four tables.

**Table A1: Survey Summary: EMS and permitting**

<b>Country</b>	<b>Summary</b>
AU	Yes or partly. There are certain benefits for EMAS accredited companies. Can have single consolidated permit. Also simplifications for control and notification obligations.
CR	No formal link; EMS facilitates IPPC application; awaiting EU / MS developments
D	Formal link at Länder and national level. EMAS leads to fewer visits, can replace report by env statement, measuring obligations reduced. Federal level legal regulation, facilitating paper work.
EST	No legal link; but "soft" link - eg attitude by authorities
FIN	Explicit link of EMS to permits: monitoring and reporting obligations. While no formal link to charges, EMS can lead to lower costs, which is reflected in charges.
FR	No overall link of EMS and permitting; only link is to help define monitoring system
IRE	License holders need to have an EMS; accredited system encouraged. No formal link to level of inspection, charges etc.
IT	Explicit link - EMAS accreditation lengthens integrated permit from 5 years to 8 years. Permit renewable: simplified procedure. Also tax relief and credit lines.
LIT	EMS system can facilitate IPPC permit application given that it needs a description of EMS
NL	Policies established for tailoring permitting and inspection to quality of EMS; legislation underway. Discussions on flexible permitting for truly pro-active pro-SD companies
SR	EMS is not linked to permitting, inspection and enforcement
SW	No linkage. Indeed recent study concluded that a company EMS does not reduce the need or costs for inspection
UK	Risk assessment views EMS as positive, therefore less effort required by authorities, and lower IPPC charges

**Table A2: Survey Summary: Multi installation permitting**

Country	Summary
AU	Yes, possible to have one permit for whole estate if one owner. if several owners several permits. No permits for a collection of different installations located on different sites.
CR	No linkage, but question seen to as positive and interesting
D	Only single installation permits, but "wide definition of installation". Possible for several single installations operated by same enterprise (operator) if located on same estate, linked to commonly used part of overall installation and aiming for similar technical purposes.
EST	One company, one site, different installations: one permit
FIN	One "installation" can be more that 1 unit (indeed different owners) and if technically and production integrated or if waste stream can only be looked at together, then one overarching permit
FR	Same site, same operators, many installations: 1 permit. Different sites cannot be linked within 1 permit
IRE	Licenses are site specific, no multi-installation permits as such (?). Ireland interested in this question
IT	No multi installation permits; though there are multi-installation voluntary agreements
LIT	Yes, multi installation same site permits do exist. Different sites: very seldom are joint permits granted.
NL	Research on use of multi-site permitting underway; proposals for legislation allowing "experiments" on this will be out in near future. Research also underway on possibilities and constraints under existing legislation for permitting industrial estates and eco-industrial parks.
SR	No multiple installation permits.
SW	Different activities, if of same person company, can be covered under one permit, where viewed as one entity (definition of entity). No collective permits across sites. Conditions applying to two or more entities can only become placed where it likely to increase compliance or offer additional benefits.
UK	No proposals currently

**Table A3: Survey Summary: Emissions Trading**

Country	Summary
AU	No ET. Studies carried out with respect to GHG emissions
CR	No ET scheme. SOx and NOx interested in further discussions
D	Not yet. Working group on GHG ET, and studies on tradable certificates in fields of waste and cleaner energy.
EST	No ET. But may arise with NEC Directive. Expect future use.
FIN	No Trading, but NEC leads to domestic bubble within which allocation (type of trading)
FR	No ET
IRE	No ET, but very interested in link of IPPC and national ceilings. Concern that NOx trading would be monopolised by largest electricity producer.
IT	No, but in north-east Italy, provincial and municipal administrations are planning to apply a bubble system to environmental licensing, particularly for emissions to air.
LIT	No system; new concept.
NL	A scheme for NOx emissions trading is being developed; implementation planned for 2004 ( <i>see presentation</i> )
SR	No system for ET. Have quotas for SO2 – divided by the MoE yearly between installations that emit SO2 (could be worth clarifying)
SW	No ET, but have NOx charge ( <i>see presentation</i> ). Crucial instruments.
UK	ET for CO2 in place, SOx NOx consultation ( <i>see also presentation</i> )

**Table A4: Survey Summary: Other instruments**

<b>Country</b>	<b>Summary</b>
AU	Where machines are already covered by regulation, site use permit not required
CR	VAs
D	No discussion on "new" instruments (VAs, in operation, are regarded as "existing instruments")
EST	Inter-industry bargaining if not enough permits for a given site
FIN	Registration system for SMEs, VAs
FR	Voluntary engagements for reducing emissions
IRE	Accredited scheme for Solvents Directive and SMEs
IT	New legislation include simplification of EIA and IPPC procedures, and procedures take into account cost benefit of the projects covering the 3 pillars of SD
LIT	Latest development: rules on IPPC permitting.
NL	Established 'alternative' regulatory approaches: voluntary (negotiated) agreements with sectors of industry and policies encouraging companies to implement EMS
SR	Latest developments: Proposed IPPC act, new air Protection Act
SW	Flexible mechanisms aim to be used by 2005; also have VAs + for SMEs: SimpLex
UK	"Modern regulation" (also VA)